

What is claimed is:

- Claim 1. A telecommunications system, comprising:
- a customer service terminal having a digital signal-input, a low voltage DC power-input, a plurality of analog signal-outputs, and at least one digital signal-output;
  - a digital subscriber line connected to said digital signal-input;
  - a plurality of analog devices, one analog device being connected to each one of said plurality of analog signal-outputs;
  - a low voltage DC power supply having a high voltage AC input connected to a high voltage AC power line, and having a low voltage DC output connected to said low voltage DC power-input;
  - a low voltage rechargeable battery pack forming a manually-removable portion of said low voltage DC power supply;
  - said low voltage DC power supply being operable to utilize said low voltage battery pack to maintain said low voltage DC power input to said low voltage DC power-input of said customer service terminal upon failure of said high voltage AC line connected to said high voltage AC input of said low voltage DC power supply;
  - a first indicator forming a portion of said low voltage DC power supply to indicate failure of said high voltage AC power line;
  - a second indicator forming a portion of said low voltage DC power supply to indicate a state of charge of said battery pack; and
  - said low voltage DC power supply being constructed and arranged to facilitate manual removal of a discharged low voltage battery pack, and manual installation of a charged low voltage battery pack, without interrupting operation of said customer service terminal, so long as said first indicator indicates a lack of failure of said high voltage AC line.

- Claim 2. The telecommunications system of claim 1 wherein a current capacity of said low voltage battery pack operates to maintain operation of said customer service

terminal in the event of failure of said high voltage AC line for a time period as long as eight hours.

Claim 3. The telecommunications system of claim 1 wherein said digital subscriber line is an xDSL.

Claim 4. The telecommunications system of claim 3 wherein a current capacity of said low voltage battery pack operates to maintain operation of said customer service terminal in the event of failure of said high voltage AC line for a time period as long as eight hours.

Claim 5. The telecommunications system of claim 4 wherein said xDSL line is a SDSL line.

Claim 6. The telecommunications system of claim 1 wherein said customer service terminal remains continuously operative so long as a low voltage DC is continuously applied to said low voltage DC power-input;

such that removal of a discharged low voltage battery pack and installation of a charged low voltage battery pack in the presence of said first indicator indicating failure of said high voltage AC power line results in a period of inoperativeness of said customer service terminal that is equal in length to the time that it takes to remove said discharged low voltage battery pack and then install said charged low voltage battery pack.

Claim 7. A telecommunications system, comprising:

a customer service terminal having a digital signal-input, a low voltage DC power-input, a plurality of analog signal-outputs, and at least one digital signal-output;  
a digital subscriber line connected to said digital signal-input;

a plurality of analog devices, one analog device being connected to each one of said plurality of analog signal-outputs;

at least one digital device connected to said at least one digital signal-output;

a low voltage DC power supply having,

a high voltage AC input connected to a high voltage AC power line,

an AC-to-DC rectification network having an AC input connected to said high voltage AC input and having a high voltage DC output,

a pulse width modulating DC-to-DC converter having an input connected to said high voltage DC output of said AC-to-DC rectification network, and a low voltage DC output connected to said low voltage DC power-input of said customer service terminal,

a control loop connected to said low voltage DC output of said pulse width modulating DC-to-DC converter and responsive to DC energy demands of said customer service terminal, and connected in controlling relation to said pulse width modulating DC-to-DC converter;

a low voltage rechargeable battery pack connected to said pulse width modulating DC-to-DC converter for charging said low voltage rechargeable battery pack and for maintaining said low voltage DC power input to said low voltage DC power-input of said customer service terminal upon failure of said high voltage AC line connected to said high voltage AC input of said low voltage DC power supply; and

said low voltage DC power supply being constructed and arranged to facilitate manual removal of a discharged low voltage battery pack, and manual installation of a charged low voltage battery pack without interrupting operation of said customer service terminal.

Claim 8. The telecommunications system of claim 7 including:

a first indicator forming a portion of said low voltage DC power supply for indicating failure of said high voltage AC power line;

a second indicator forming a portion of said low voltage DC power supply for indicating a state of charge of said low voltage rechargeable battery pack.

Claim 9. The telecommunications system of claim 7 wherein:

a low voltage DC applied to said low voltage DC power-input of said customer service terminal is effective to maintain said customer service terminal operative in the absence of an on/off switch for said customer service terminal;

a current capacity of said low voltage rechargeable battery pack operates to maintain operation of said customer service terminal in the event of failure of said high voltage AC line for a relatively long time period; and.

wherein after such a relatively long time period said low voltage rechargeable battery pack can be replaced while rendering said customer service terminal inoperable for only the time interval needed to effect said replacement.

Claim 10. The telecommunications system of claim 9 wherein said current capacity of said low voltage rechargeable battery pack operates to maintain operation of said customer service terminal in the event of failure of said high voltage AC line for a time period as long as eight hours.

Claim 11. The telecommunications system of claim 10 wherein said digital subscriber line is an xDSL.

Claim 12. In a telecommunications system having a customer service terminal that is connected to receive telecommunication input from a xDSL and which provides output analog telephone service and output digital data service from said xDSL, said customer service terminal remaining operate so long as a low voltage DC is applied to a low voltage DC input thereof, a method for minimizing periods of inoperativeness of said customer service terminal, comprising:

providing a DC power supply having a high voltage AC input and a low voltage DC output;

connecting said low voltage DC out put of said DC power supply to said low voltage DC input of said customer service terminal;

providing a high voltage AC source;

connecting said high voltage AC input of said DC power source to said high voltage AC source;

providing a rechargeable low voltage battery;

connecting said rechargeable low battery to said DC power supply in a manner to apply a low voltage DC to said low voltage DC input of said customer service terminal upon failure of said high voltage AC source;

utilizing said DC power supply to charge said rechargeable low voltage battery when said high voltage AC source has not failed;

providing an indicator to visually indicate that a charge of said battery is low;

and

swapping said low voltage battery for a fresh low voltage battery as a function of said visual indication.

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